Awareness and Sources of Information About Osteoporosis Among Medical Students

Tıp Fakültesi Öğrencilerinin Osteoporoz Farkındalığı ve Bilgi Kaynakları

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Summary

Aim: The aim of this study is to evaluate the knowledge of osteoporosis (OP) and the sources of information about the disease among medical students and the effect of the medical training on their awareness about the OP.
Material and Methods: Two hundred twenty seven students were asked if they knew OP. Two hundred fifteen students reported that they were familiar with OP. Statistical analysis was done among these 215 students. The questionnaire included 7 questions. Participants were divided into three groups: English preparatory year's students (EP), first year's students, second year's students.
Results: Most of the students (94.4%, n=203) thought that OP was serious health problem. Two hundred three students (94%) believed that inadequate dietary calcium and vitamin D intake was the cause of OP. Bone densitometry was the mainly chosen (90.1%) diagnostic method. As source of knowledge from television was reported by 63.7% of the students. Number of the students who knew, in which population OP was seen, correctly (p=0.035) and who reported the health professionals as the source of knowledge (p=0.001) were significantly increased in first and second classes when compared with EP class.
Conclusions: We observed that medical student who had no lessons of OP, have knowledge about OP by means of television and newspaper. *(From the World of Osteoporosis 2009;15:43-7)*
Key words: Awareness, medical students, osteoporosis

Özet

Amaç: Bu çalışmanın amacı, tıp fakültesi öğrencilerinin osteoporoz (OP) bilgisini, bilgi kaynaklarını, eğitimlerinin osteoporoz farkındalıklarına olan etkisini değerlendirmektir.
Gereç ve Yöntemler: İkiyüz yirmiyedi öğrencinin OP'u bilip bilmediği sorgulandı. İkiyüzonbeş öğrenci OP'u bildiğini belirtti. İstatistiksel analizler bu 215 öğrenci arasında yapıldı. Anket 7 soruyu içermekteydi. Katılımcılar üç gruba ayrıldı: İngilizce Hazırlık Sınıfı Öğrencileri (İH), Birinci sınıf öğrencileri, İkinci sınıf öğrencileri.
Bulgular: Öğrencilerin çoğunluğu (%94,4, n=203) OP'un önemli bir sağlık problemi olduğunu düşünüyordu. İkiyüzüç öğrenci (%94) diyette yetersiz kalsiyum ve vitamin D alımının OP'a neden olduğuna inanıyordu. Kemik dansitometrisi (%90,1) en çok seçilen tanı metoduydu. Öğrencilerin %63,7'si bilgi kaynağı olarak televizyonu bildirdi. OP'un hangi populasyonda görüldüğünü doğru bilen (p=0,035) ve bilgi kaynağı olarak sağlık personelini seçen (p=0,001) öğrencilerin sayısı, İH ile karşılaştırıldığında 1. ve 2. sınıftakilerde anlamlı olarak artmıştı.
Sonuç: Osteoporoz dersi almamış tıp fakültesi öğrencilerinin, televizyon ve gazete yolu ile OP hakkında bilgi sahibi olduklarını gözlemledik. *(Osteoporoz Dünyasından 2009;15:43-7)*
Anahtar kelimeler: Farkındalık, tıp fakültesi öğrencileri, osteoporoz

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Introduction

Osteoporosis (OP) is a skeletal disease, characterized by structural deterioration of bone tissue and low bone mass leading to bone fragility and increased susceptibility to fractures (1). It is one of the major public health problems and its influence on the risk of fragility fracture; may significantly affect life expectancy and quality of life. It can be prevented with appropriate lifestyle and sometimes medication; and in patients with OP, treatment may involve lifestyle changes, preventive measures against falls and appropriate medications. Health care providers need to determine the population's awareness and knowledge of OP to plan effective education programs (2).

There are several studies about awareness and knowledge of OP in different countries and various populations, but to our knowledge there are no studies among medical students (3,4). In most studies, there is a significant relationship between knowledge and educational level; increased knowledge of OP was correlated with a higher level of education and there are different results for the sources of knowledge about OP (5-7).

The aim of this study is to evaluate the knowledge of OP and the sources of information about the disease among English preparatory, first and second year's medical students; and the effect of the medical training on their awareness about the OP.

Material and Methods

This study was carried out in the "Ondokuz Mayis University "Faculty of Medicine between April 1st and May 30th 2008. A survey was conducted among medical students using a self-administered questionnaire. The students were informed about the purpose of the study and gave their consent. The study was approved by the management of medical school. Two hundred twenty seven students were asked if they knew OP. 215 students reported that they were familiar with OP. Statistical analysis was perform among these 215 students. Participants were divided into three educational groups: Group 1: English preparatory year's students (EP) (n=53), group 2: first year's students (n=83), group 3: second year's students (n=91).

The questionnaire included 7 questions on awareness and knowledge of OP. The following questions were asked to the students: "Is OP a serious health problem? Is OP a preventable disease?". Students were asked to answer as "Yes" or "No". Knowledge or awareness of the participants about predisposing factors for OP, the population in which OP seen, the diagnostic methods, the treatment options and the sources of knowledge about OP were also evaluated by asking multiple choice questions (Table 1). Three groups were also compared according to their educational levels.

Statistical Analysis

Statistical analysis was performed with SPSS (Statistical Package for Social Sciences) version 13.0 for windows. Descriptive data (age) were presented mean ± standard deviation (SD). In addition Chi-square test was used to compare the groups for knowledge or awareness of the participants about causes of OP, diagnostic methods, treatment options and sources of knowledge about OP. Chi-square χ^2 values for each cell in the table was examined to find out the source of significance. $P<0.05$ was accepted as statistically significant.

Results

Two hundred twenty seven students (mean age=19.88 ± 1.36 years) were asked if they knew OP. The majority of the students (94.7%, n=215) reported that they were familiar with OP. These participants were divided to 3 groups according to their educational status. There was no significant difference between the groups regarding the question about the familiarity with OP. (p=0.06). The same questionnaire was applied to all of the groups. 94.4% (n=203) of the subjects thought that OP was a serious health problem, 87.4% (n=188) believed that OP was a preventable disease. There was no significant difference between the groups about these questions (respectively p=0.517, p=0.108) (table 1).

For the question about the population in which OP is seen, participants in group 2 and group 3 gave more correct answers (women, man and children) than group 1 (p=0.035) (Table 1).

The sources of knowledge about OP are summarized in table 1. There was a significant difference between the groups for reporting the menopause (p=0.001), older age (p=0.004), estrogen deficiency (p=0.001) and the drugs (p=0.002) as the causes of OP. The difference between the groups is shown in fig. 1.

The answers of the students about the diagnostic methods of OP are shown in table 1. There was a significant difference between the groups for reporting the clinical findings (p=0.001) and conventional radiography (p=0.007) as diagnostic methods. The difference between the groups is shown in fig. 2.

The treatment options of OP were reported as one or more of the following: medical treatment (86%), exercise (65.6%), exposure to sunshine (51.6%) and others (19.5%). There was a significant difference between the groups regarding the treatment options (medical treatment p=0.001, exercises p=0.008, exposure to sunshine p=0.015, others p=0.021) (Table 1).

With regard to sources of knowledge, 63.7% of students reported television, 57.2% newspapers, 43.3% health professionals, 22.8% friends and 28.8% others as the main sources of knowledge. For reporting the health professionals as source of information there was a significant difference between the groups (p=0.001) (Table 1). The difference between the groups is shown in fig. 3.

Discussion

There are few studies about awareness and knowledge of OP among college students, but to the best our knowledge there is no study among medical students (8-11). University students represent a better-educated

section of the society and especially medical students, who will work for public health, have the potential to become role models for the society. In the present study, the knowledge of OP and the sources of information about disease among EP, first and second year's medical students; and the effect of the medical training on their awareness about the OP have been revealed. EP does not have any medical lecture. At the first and second years of the faculty of medicine there are lectures about bone structure and bone metabolism, but not about OP. So this study was carried out among the medical students who have not been educated about OP yet.

Different results between 54% and 96% are reported among the general public in community-based studies about the awareness and knowledge (2,5,12-14). In two different studies among college students these percentages were between 84% and 90% (8,10). On the other hand, in the study among Asian and Asian-American col-

Table 1. Survey items and results (percentage and number)

Questions	Educational Groups				
	All % (n)	Group I % (n)	Group II % (n)	Group III % (n)	p
Do you know what osteoporosis is?					
Yes	94.5% (215)	88.7% (47)	95.2 % (79)	97.8% (89)	0.060
No	5.3% (12)	11.3% (6)	4.8% (4)	2.2% (2)	
1-Is osteoporosis a serious health problem?					
Yes	94.4% (203)	91.5% (43)	92.4% (73)	97.8% (87)	0.517
No	5.6 % (12)	8.6% (4)	7.6% (6)	2.2% (2)	
2-Is osteoporosis a preventable disease?					
Yes	87.4% (188)	83% (39)	83.5% (66)	93.3% (83)	0.108
No	12.5% (27)	17% (8)	16.5% (13)	6.7% (6)	
3-In which population is osteoporosis seen?					
Children	52.4% (111)	2.1% (1)	0% (0)	0% (0)	0.166
Men	55.7% (118)	0% (0)	1.12% (1)	0% (0)	0.421
Women	90.1% (191)	82.9% (39)	37.9% (30)	53.9% (48)	0.001
Men-women	36.3% (77)	4.2% (2)	31.6% (25)	16.8% (15)	0.001
Children-men-women	5.2% (11)	10.6% (5)	29.1% (23)	29.2% (26)	0.035
4-What are the causes of osteoporosis?					
Inadequate dietary calcium and Vit D intake	94% (203)	95.7% (45)	89.9% (71)	97.8% (87)	0.077
Older age	83% (180)	68.1% (32)	88.6% (70)	87.6% (78)	0.004
Menopause	73% (157)	53.2% (25)	68.4% (54)	87.6% (78)	0.001
Inadequate exposure to sunshine	72% (155)	68.1% (32)	73.4% (58)	73% (65)	0.785
Estrogen deficiency	64.2% (138)	19.1% (9)	68.4% (54)	84.3% (75)	0.001
Drugs (cortisone, thiroksin,eg.)	34% (73)	14.9% (7)	32.9% (26)	44.9% (40)	0.002
Genetics	40% (86)	29.8% (14)	39.2% (31)	46.15 (41)	0.142
Fracture history	18.1% (39)	8.5% (4)	22.8% (18)	19.1% (17)	0.126
Others	8.8% (19)	6.4% (3)	7.6% (6)	11.2% (10)	0.566
5-What are the diagnostic methods of osteoporosis?					
Clinical findings	45.3% (96)	17.0% (8)	40.5% (32)	62.9% (56)	0.001
Conventional radiography	55.7% (118)	48.9% (23)	44.3% (35)	67.4% (60)	0.007
Bone densitometry	90.1% (191)	82.9% (39)	89.9% (71)	91% (81)	0.344
Laboratory findings	36.3% (77)	25.5% (12)	36.7% (29)	40.4% (36)	0.221
Others	5.2% (11)	4.2% (2)	2.5% (2)	7.9% (7)	0.280
6-What is the treatment of osteoporosis?					
Medical treatment	86.6% (87)	70.2% (33)	82.3% (65)	97.8% (87)	0.001
Exercises	65.6% (69)	55.3% (26)	58.2% (46)	77.5% (69)	0.008
Adequate exposure to solar ultraviolet	51.6% (55)	36.2% (17)	49.4% (39)	61.8% (55)	0.015
Other	19.5% (18)	6.4% (3)	26.6% (21)	20.2% (18)	0.021
7-Sources of knowledge on osteoporosis					
Television	63.7% (137)	72.3% (34)	64.6% (51)	58.4% (52)	0.271
Health professionals	43.3% (93)	17% (8)	40.5% (32)	59.6% (53)	0.001
Friends	22.8% (49)	14.9% (7)	29.1% (23)	21.3% (19)	0.168
Newspaper-magazine	57.2% (123)	59.6% (28)	58.2% (46)	55.1% (49)	0.857
Other	28.8% (62)	21.3% (10)	26.6% (21)	34.8% (31)	0.216

lege students, only 11% of students had answered 75% of OP fact questions correctly (9). In the current study it was found that 94.5% of medical students had known OP.

In the study among college women by Kasper et al (10), the students had believed that OP is less serious than other common causes of morbidity and mortality in women, such as heart disease and breast cancer. Nguyen et al (9) reported that 38% of college students had attributed OP to fate, chance or luck and 42% had said menopause was a natural occurrence for which pharmacologic treatment should not be administered. In our study most of the participants (94.4%) thought that OP is a serious health problem.

Although OP has long been considered a special problem for women, it is also an important clinical issue for men. Idiopathic OP occurs in children or young adults of both sexes. Riberio et al (15) concluded that it was a common misconception that OP was a disease limited to women. In a study by Cummings and Mellton (16), only 59% of women had realized that men also experience loss of bone density as they age. Similarly, in our study approximately half of the students (54.4%) believed that OP is seen only in women. Although 25.1% of students knew that OP is seen in both sex and children, the proportion was quite low. But in detail, correct answer proportion was higher in upper class students.

The National Institutes of Health (NIH) has released predictors of low bone mass (17). In recent studies specifically inadequate dietary calcium-vitamin D intake, menopause, menstrual irregularities, family history and lack of exercise were defined by the participants as the more prevalent risk factors (2,8,18). In present study, the more probable causes of OP were inadequate dietary calcium and vitamin D intake, following by older age, menopause, inadequate exposure to sunshine and estrogen deficiency. Genetics, drugs, fracture history and others as the causes of OP, were the least important. Increased knowledge about the causes of OP (especially menopause, older age, estrogen deficiency, drugs) was significantly different between the groups.

Currently, dual X-ray absorptiometry (DXA) is one of the most widely used techniques for bone mineral density measurement in the evaluation of OP (19). In this study, according to all groups DXA was the most common diagnostic method for OP. It seems that their knowledge about DXA is not related to medical education. Reporting clinical findings and conventional radiography as diagnostic modalities for OP was more frequent in first and second year medical students when compare with EP students.

There are many studies which have different results about the sources of OP knowledge. Garton et al (20) found that most women had heard about OP (84%) usually from women's magazines or friends; family practitioners and hospital doctors were the least important source of information about this subject. Conversely, in two different studies it was reported that participants had been informed by their doctors (5,14). In another study, 55% of women had reported television as the main source of knowledge (2). In our study, more than half of the students reported television as the main source of OP knowledge, followed by newspapers, health professionals and friends. This can be explained by the popularity of television among young adults. Continuous long term health promotion strategies directed toward both physicians and the general population, appear to increase awareness about OP in women and/or in the medical community (21). Therefore health education messages given via television should be designed carefully. For the first and second year's students, health professionals also play an important role as sources of knowledge about OP. These findings are

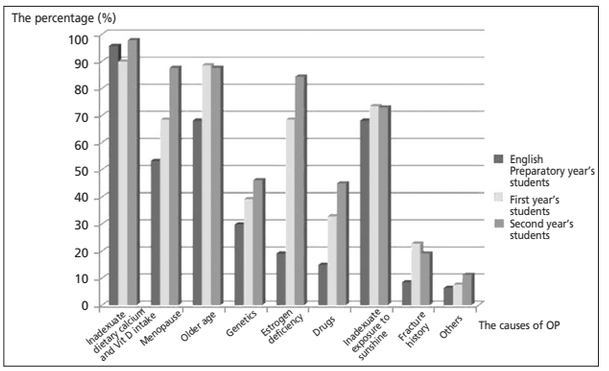

Figure 1. Distrubition of percentage of students that knows osteoporosis causes

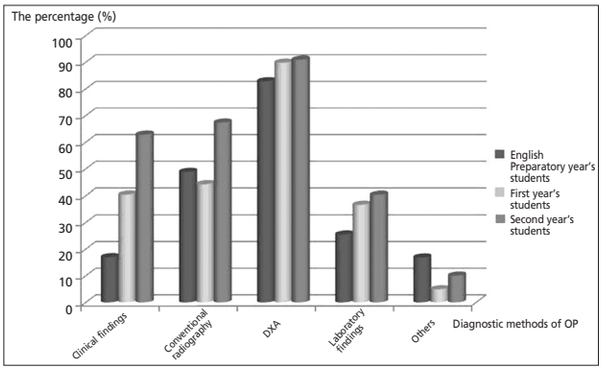

Figure 2. Distrubition of percentage of students that knows diagnostic methods

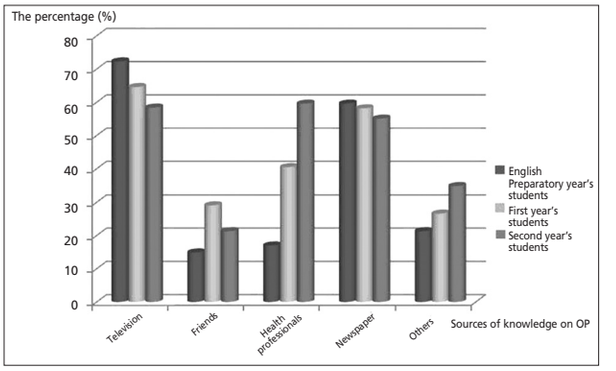

Figure 3. Distrubition of percentage of students with respect to sources of knowledge regarding osteoporosis

probably due to increasing communication between the health professionals and medical students with the beginning of medical education.

Previous reports indicated that there is positive correlation between OP knowledge and educational level (2,5,6). Although educational levels of students in our study were not so different, there were significant differences between the groups regarding the causes of OP, the population in which OP is seen, diagnostic methods and treatment options. On the other hand the participants have a quite good amount of knowledge about OP and the main source of this knowledge seems to be television and newspapers. Broadcast matters such as television and newspaper may play an important role to increase the public and medical students' awareness of OP. So the content and frequency of the tasks about OP in the broadcast matters should be appropriately designed.

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